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# MARKET TEST OF INSTANT SWEETPOTATOES IN SELECTED INSTITUTIONAL OUTLETS



Market Test of  
INSTANT SWEETPOTATOES  
In Selected Institutional Outlets

Marketing Research Report No. 580

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Economic Research Service  
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## PREFACE

This report is one of a group based on research conducted by the Marketing Economics Division, Economic Research Service, in collaboration with the Southern Utilization Research and Development Division, Agricultural Research Service.

The study is part of a broad research program designed to develop markets for agricultural products. Determination of the acceptability of products in various forms--particularly newly developed products--and of ways to reduce marketing costs can provide a guide to industry in the development of new markets or the expansion of present ones.

The project was conducted under the general supervision of Marshall E. Miller, Chief of the Market Potentials Branch of the Marketing Economics Division.

## ACKNOWLEDGMENTS

The National Analysts, Inc., Philadelphia, Pa., under contract with the U. S. Department of Agriculture, assisted in the development of all questionnaires and schedules and conducted the fieldwork for the test in Cleveland, Ohio.

Sincere appreciation is extended to the following organizations that cooperated in the study: the Southern Utilization Research and Development Division, Agricultural Research Service; the Human Nutrition Research Division, Agricultural Research Service; the Louisiana Department of Agriculture; the Louisiana Sweetpotato Association; the Louisiana Sweetpotato Commission; the Red Star Yeast and Products Company, Milwaukee, Wis.; the Louisiana Restaurant Association; and the Northeastern Ohio Restaurant Association, Inc.

Thanks are expressed to the restaurant, cafeteria, and other institutional operators in Cleveland, Ohio; New Orleans, La.; and Washington, D. C., who used the instant sweetpotato flakes in their establishments. Thanks are expressed also to the enumerators and other local groups and individuals who helped make this work possible.



## CONTENTS

	<u>Page</u>
Highlights . . . . .	iv
Introduction . . . . .	1
Development of instant sweetpotato flakes . . . . .	2
The market research program . . . . .	2
Research design . . . . .	2
Sample design . . . . .	2
Field procedures . . . . .	4
Plans for the test . . . . .	6
Actual test procedures . . . . .	7
Preparation of recipes . . . . .	9
Measurement of sweetpotato utilization in restaurants . . . . .	10
Use of sweetpotatoes . . . . .	10
Reason for not using sweetpotatoes . . . . .	11
Meals when sweetpotatoes served; number of servings . . . . .	11
Style of preparation . . . . .	13
Buying practices . . . . .	14
Problems in using sweetpotatoes . . . . .	16
Use of dehydrated mashed white potatoes . . . . .	17
Results of the institutional market test . . . . .	17
Customer reactions to instant sweetpotato flake recipes . . . . .	17
Entrees eaten with sweetpotatoes . . . . .	17
Customer evaluation of the new product . . . . .	17
Reaction of the restaurant operators to instant sweetpotato flakes . . . . .	19
Main advantages of instant sweetpotato flakes . . . . .	19
Main disadvantages of instant sweetpotato flakes . . . . .	19
Expected impact of new product on volume of sweetpotatoes served . . . . .	19
Reaction to the specific recipes . . . . .	21
Size of can . . . . .	24
Market possibilities for instant sweetpotato flakes . . . . .	24
Restaurants . . . . .	25
Other institutions . . . . .	26
Conclusions . . . . .	26
Appendix A. Schedules . . . . .	27
Appendix B. Instant sweetpotato flake recipes . . . . .	40

## HIGHLIGHTS

A study to determine institutional acceptance of instant sweetpotato flakes was conducted in Cleveland and New Orleans during the spring of 1962. Analysis of the data collected revealed the following facts:

### FROM RESTAURANT OPERATORS:

Market potential for instant sweetpotato flakes: The research results indicate a highly favorable reaction to instant sweetpotato flakes by chefs, kitchen help, and restaurant operators. Restaurant operators liked instant sweetpotato flakes because they were easy to prepare, saved time and labor, and added variety to menus. Over half of the restaurant operators in the two cities said they would serve sweetpotatoes more often if the new product were made available.

### FROM RESTAURANT CUSTOMERS:

Opinions of instant sweetpotato flakes: Evidence from this study indicates there is a potential market for sweetpotato flakes in restaurants. When offered in the menu, 20 to 25 percent of the customers ordered them, and customer acceptance was noticeably favorable. Approximately 90 percent of the customers in Cleveland said that the sweetpotato recipes made with instant sweetpotato flakes were "very good;" almost 80 percent made similar statements in New Orleans.

## MARKET TEST OF INSTANT SWEETPOTATOES IN SELECTED INSTITUTIONAL OUTLETS

By Philip B. Dvoskin, O. C. Hester, Howard W. Kerr, Jr.  
and James A. Bayton 1/

### INTRODUCTION

The sweetpotato industry has experienced a steady decline in per capita consumption of sweetpotatoes over the last 20 years. In 1941 per capita consumption of sweetpotatoes amounted to 18.8 pounds; by 1961 this had declined to 6.8 pounds. Acreage harvested decreased almost three-fourths from 1941 to 1961. Despite an average increase of about 60 percent in yield per acre, total production dropped from 39 million hundredweight in 1934-37 to less than 17 million in 1958-61. 2/

This decline in the sweetpotato industry had occurred during a period of increasing population and rising incomes. Some of the reasons for the decline are: the perishable nature of sweetpotatoes, lack of mechanization in harvesting, shifts in composition of foods consumed, the increasing demand for convenience foods, and the shift in population from farm to urban areas (historically, sweetpotato consumption has been higher among farm families).

Sweetpotato producers are faced with a problem in marketing the total yield of sweetpotatoes. Sweetpotatoes are frequently field sorted, and most of the sweetpotatoes unsuitable for the fresh or canner market are left in the field to be used as livestock feed or to rot. The yield of sweetpotatoes suitable for the fresh market may vary widely. Practically all sweetpotatoes rejected as unsuitable for the fresh market or for canning are sound. They may be jumbo size, scarred or split because of too rapid growth, long, thin, or twisted. These are rejected on the basis of appearance rather than soundness or nutritive value. An outlet such as flakes for these potatoes could increase farmers' returns from the sweetpotato enterprise and might possibly encourage the marketing of higher quality sweetpotatoes in the fresh and canned market. There has been a fairly rapid shift in marketing from fresh to canned sweetpotatoes. In Louisiana, about one-fourth of the 1958-59 sweetpotatoes that were marketed went to canners. In the 1961-62 season more than half of the sweetpotatoes marketed went to canners. Possible reasons for this shift are: (1) fresh sweetpotatoes are very perishable, and (2) they are a heavy, bulky commodity and therefore costly to transport.

If a process could be developed to remove water, peel, and trim from sweetpotatoes, it would permit considerable savings in transportation. Such a process could eliminate or reduce the perishability problem, could make sweetpotatoes more of a convenience food, and could increase utilization of the crop.

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2/ Simmons, Will M. Trends in the Geographic Pattern of Production of Sweetpotatoes. Vegetable Situation, TVS-145, U. S. Dept. Agr., July 1962.

## Development of Instant Sweetpotato Flakes

The Southern Regional Research Laboratory undertook research to develop instant sweetpotato flakes following the successful development of white potato flakes by the Eastern Regional Research Laboratory. It was expected that the development of an instant sweetpotato flake would provide an outlet for a substantial volume of production which currently is unmarketable, and would permit growing the crop for maximum yield. This would enable producers to supply the fresh and canning markets with high quality product and also to realize an increased return on the total production. It also would extend and add flexibility to the marketing season. The procedure for producing instant sweetpotato flakes draws upon the process for making white potato flakes, the canning of sweetpotatoes, and new methods developed through experiments. The raw potatoes are washed, preheated, peeled, trimmed, cooked, pureed, dried on a double drum dryer, broken into small irregular shaped flakes, and then packaged. 3/

Cost estimates developed from pilot plant operations and projected to all-new plants indicate that sweetpotato flakes can be produced and packaged for 32.1 to 81.9 cents per pound. Cost varied with plant size, number of operating days, and raw material cost. The lowest cost estimate was obtained for a plant producing 2,340 pounds of flake per hour, operating 16 hours per day for 130 days a year, and obtaining sweetpotatoes for 1/2 cent per pound. The higher cost estimate was for a plant producing 780 pounds of flake per hour, operating 8 hours per day for 75 days a year, and obtaining sweetpotatoes for 2 cents per pound. 4/

### The Market Research Program

The institutional test reported here is designed to determine the acceptance of sweetpotato flakes in restaurants and other types of institutions.

The major objectives of the institutional test for instant sweetpotato flakes were: (1) to determine the extent of prior use of sweetpotatoes, (2) to determine the particular ways in which sweetpotatoes have been used, (3) to have sample institutions prepare and serve recipes using the instant sweetpotato flakes, (4) to determine the reactions of the institutional owners-managers or cooks to the new product, and (5) to determine the reactions of customers in the institutions to the new product.

Another phase of the research program will deal with household consumer acceptance of this new product. In addition, consideration is being given to a market test in retail food stores.

## RESEARCH DESIGN

### Sample Design

A southern and a northern city were selected for testing to determine the potential of the test product in relatively heavy and light sweetpotato-consuming areas. New

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3/ Deobald, Harold J., McLemore, Taylor A., McFarland, Vernon H., and others. Precooked Dehydrated Sweetpotato Flakes. U. S. Agr. Res. Serv. ARS 72-23. February 1962.

4/ Decossas, K. M., Molaison, L. J., Kolton, S. P., and others. Today's Food Plant Costs. Food Engineering, April 1962.

Orleans was selected as the heavy-consuming southern city and Cleveland as the light-consuming northern city. Both cities are major metropolitan areas with large populations and contain large numbers of restaurants and a wide assortment of other institutional outlets. As taken from the U. S. Census of Population 1960, the population of the standard metropolitan area for Cleveland is 1,796,595 and for New Orleans 868,480.

Although Cleveland is a relatively light-consuming area for sweetpotatoes, it is considered to be a good market for fresh sweetpotatoes produced in Louisiana. New Orleans, because of its location within the boundries of the State which leads in sweetpotato production, is a major market for sweetpotatoes.

The aggregate lists of commercial eating establishments, made up from the classified pages of each city's phone directory, were refined to exclude all bars, cafes, drive-ins, luncheonettes, and other similar establishments. Only bona fide restaurants offering table service and deriving more than half of their gross earnings from sales of food consumed on the premises were included in the study. This produced a list of 444 eligible restaurants in Cleveland and 116 in New Orleans. The identification of these eligible restaurants was accomplished with the assistance of personnel of the local restaurant associations and health department license offices. 5/

Simple random methods were used to select restaurants for the primary and alternate sample lists for each city. If a given alternate could not be obtained, the enumerator was instructed to contact the nearest restaurant that satisfied the criteria. The final sample consisted of 44 restaurants in each city.

5/ For the remainder of the report, the term "restaurants" includes both restaurants and cafeterias.

Table 1.--Number and type of restaurants and other institutions in final sample

Type of institution	Cleveland	New Orleans
	<u>Institutions</u>	<u>Institutions</u>
Restaurants.....	43	38
Cafeterias.....	1	6
Total restaurants.....	44	44
High school.....	1	0
Hospital.....	1	1
Children's day nursery.....	1	1
Nursing home - home for aged.....	2	3
Boarding school.....	0	1
Elementary school.....	2	1
Total, other institutions.....	7	7
Total.....	51	51

In addition to restaurants, 14 institutions such as hospitals and schools were included in the study so that the product could be tested in other important types of institutional outlets. Detailed testing, however, was not feasible in these institutions because the characteristics of each outlet were dissimilar. An assessment of the acceptance of instant sweetpotato flakes by these particular outlets is discussed in a later section of this report. The total number of restaurants and institutions studied was 102 (table 1).

For sample restaurants the median number of customers served for the midday meal was found to be 112.5 in each city. The median number of customers served for the evening meal was 80 in Cleveland and 75 in New Orleans.

The majority of restaurants studied were typical American, offering menus of general cuisine. Other restaurants served foreign dishes and were therefore classified as specialty restaurants (table 2).

Table 2.--Types of menu offered in restaurants

Types of menu	Cleveland	New Orleans
	<u>Restaurants</u>	<u>Restaurants</u>
General menu.....	42	39
Special menu:		
Italian.....	1	2
Hungarian.....	1	0
French.....	0	1
German.....	0	1
Chinese.....	0	1
Total.....	44	44

### Field Procedures

Prior to the full-scale test, exploratory work to develop and test procedures and recipes was conducted in two restaurants and one university cafeteria in Washington, D. C. These institutions were provided with the test product and various recipes. A home economist conducted demonstrations on reconstituting the product and preparing the recipes. The final procedures and interview schedules were based on the findings of the exploratory study (appendix A). It also was decided that the following recipes would be used: mashed sweetpotatoes, orange sweetpotato casserole, marshmallow sweetpotato casserole, and sweetpotato pie (appendix B).

It was anticipated that restaurant operators would demand recipes other than mashed sweetpotatoes since this was not expected to be a particularly popular dish. Casserole recipes and a dessert dish were developed to overcome such anticipated resistance. To the extent that the mashed sweetpotato recipe could be used, it would represent the best evaluation of sweetpotato flakes since this recipe was made by simply adding liquid and a few flavoring ingredients. The resulting recipe, essentially a product with a minimum of embellishment, provided for a reaction by restaurant operators and customers that was primarily "pure" with respect to the product.

During the week of March 25, 1962, an introductory letter was mailed to each institution designated on the primary sample lists. The letter explained the general nature of the study and stated that a telephone call was to be expected sometime during the following week for making a personal appointment.

The person with the main responsibility for determining the menu was designated as the respondent and all future contacts with the institutions were made with this person. Institutional owners or managers were generally the person designated as the respondent (table 3).

Table 3.--Position of respondents in institutions

Position	Cleveland	New Orleans
	<u>Respondents</u>	<u>Respondents</u>
Owner.....	27	22
Manager.....	14	25
Chef, cook.....	4	2
Dietitian.....	2	1
Supervisor of cafeteria.....	2	0
Director of home for aged; director: of day nursery.....	1	1
Assistant superintendent of home for aged.....	1	0
Total.....	51	51

All respondents were asked to prepare and serve instant sweetpotato flakes twice during a specified test period. Respondents were asked to prepare the product by different recipes for each test and to serve it during different meals (midday or evening) on different days. They were asked, also, to conduct the tests during different weeks; preferably the week before Easter and during one of the two test weeks after Easter.

Enumerators demonstrated the method of reconstituting sweetpotato flakes. All respondents were furnished with a recipe brochure. They were asked to record in this brochure any changes made in the recipes, the number of servings prepared and the actual number of servings made. The necessary quantities of the test product were delivered to each institution prior to the actual test period.

The actual testing of the instant sweetpotato flakes began on April 16, 1962, in both cities. The product test in the restaurants lasted 3 weeks--until May 5, 1962. The institutions other than restaurants delayed testing the product between April 30 and May 10, 1962, as schools were recessed for the Easter or spring vacations.

During the actual test an enumerator and in some cases a home economist observed in each institution the procedures kitchen employees followed in preparing the recipes. Observers verified comments, particularly those related to recipe changes, recorded on the recipe brochure by respondents and in addition noted other kitchen operators' reactions.

The enumerator was present in the dining room during the test meals and asked customers who ordered sweetpotatoes for their opinion of the meal and also their comments about the "new recipe for sweetpotatoes."

A few days after the last product test, enumerators interviewed respondents to obtain their evaluation and reactions to the new product.

### Plans for the Test

In the pre-use interview all restaurant operators agreed to serve mashed sweetpotatoes for at least one test meal. The second dish, chosen by relatively few operators, was orange casserole. An even smaller number said they would serve sweetpotato pie or marshmallow casserole (table 4). The two cities were quite similar in this regard. However, plans to use the product in pie were somewhat higher in New Orleans.

Table 4.--Planned use of instant sweetpotato recipes

Recipe	Cleveland		New Orleans	
	Test I	Test II	Test I	Test II
	Restau- rants	Restau- rants	Restau- rants	Restau- rants
Mashed.....	33	26	30	17
Orange casserole.....	7	10	8	10
Sweetpotato pie.....	4	2	4	7
Marshmallow casserole.....	0	1	2	0
Test II not planned.....	0	3	0	10
Not ascertained.....	0	2	0	0
Total restaurants.....	44	44	44	44

Table 5.--How restaurant operators planned to present instant sweetpotatoes on menus

Menu plan for Sweetpotato Flakes	Cleveland		New Orleans	
	Test I	Test II	Test I	Test II
	Restau- rants	Restau- rants	Restau- rants	Restau- rants
Served with a particular entree: (special for that meal).....	28	24	25	21
Served with a particular entree: (not a special).....	5	8	3	0
Choice from set of vegetables.....	7	7	10	6
Dessert.....	3	1	4	6
Buffet.....	1	1	0	0
Other.....	0	0	2	0
Not ascertained.....	0	0	0	1
Test II not planned.....	0	3	0	10
Total restaurants.....	44	44	44	44



Table 6.--Replies to the question, "Is this the usual way sweetpotatoes are presented on the menu?"

Replies	Cleveland		New Orleans	
	Test I	Test II	Test I	Test II
	Restau- rants	Restau- rants	Restau- rants	Restau- rants
Usual way on menu.....	29	29	33	28
Not usual way on menu.....	11	7	8	6
Test II not planned.....	0	3	0	10
Not ascertained.....	4	5	3	0
Total restaurants.....	44	44	44	44

The majority of the operators planned to have the sweetpotatoes served with a particular entree (table 5). This was the usual way sweetpotatoes were served (table 6). (Later it will be shown that the form of sweetpotatoes most often used in the past had been candied sweetpotatoes.)

Actual Test Procedures

All restaurants served mashed sweetpotatoes, as planned. In Cleveland, there was some tendency to shift from a plan to use the orange casserole to actually using the marshmallow casserole and sweetpotato pie. There was some tendency in New Orleans to shift from the plan to use the orange casserole to actually using the marshmallow casserole (table 7). Basically, however, the restaurant operators followed the original research plan.

Table 7.--Number of restaurants using each instant sweetpotato recipe

Recipe	Cleveland		New Orleans	
	Test I	Test II	Test I	Test II
	Restau- rants	Restau- rants	Restau- rants	Restau- rants
Mashed sweetpotatoes.....	33	30	27	15
Orange casserole.....	6	7	6	7
Sweetpotato pie.....	2	1	4	7
Marshmallow casserole.....	3	2	7	3
Test II not conducted.....	0	4	0	12
Total restaurants.....	44	44	44	44

Four restaurants in Cleveland and 12 in New Orleans did not conduct Test II, mostly because of scheduling difficulties such as (1) menus were planned and printed in advance and consequently could not be shifted to accommodate the test schedule; and (2) some restaurants served only a midday or an evening meal and thus one full test was sufficient to meet the test requirements.

The test servings of the new product usually were made on a weekday, Monday through Friday. In New Orleans, however, many restaurant operators served the product on Sunday, whereas few Cleveland restaurant operators served the product on Sunday (table 8).

Table 8.--Number of restaurants serving instant sweetpotatoes on each day of week

Test day	Cleveland		New Orleans	
	Test I	Test II	Test I	Test II
	Restau- rants	Restau- rants	Restau- rants	Restau- rants
Sunday.....	0	3	7	5
Monday.....	7	7	8	3
Tuesday.....	10	6	9	4
Wednesday.....	9	4	8	8
Thursday.....	13	12	8	6
Friday.....	4	6	1	5
Saturday.....	1	2	3	1
Test II not conducted.....	0	4	0	12
Total restaurants.....	44	44	44	44

The sweetpotatoes were most frequently served at the midday meal when these restaurants have their heaviest patronage (table 9). Thus, the test product received the heaviest possible exposure.

Table 9.--Restaurants serving instant sweetpotato flakes at midday and at evening meals

Meal at which served	Cleveland		New Orleans	
	Test I	Test II	Test I	Test II
	Restau- rants	Restau- rants	Restau- rants	Restau- rants
Midday meal.....	31	25	29	13
Evening meal.....	12	14	13	17
Both meals.....	1	1	2	2
Test II not conducted.....	---	4	---	12
Total restaurants.....	44	44	44	44

In Cleveland, the median number of servings of instant sweetpotatoes prepared for a test meal was 25. The median number of actual servings was 16. The median number of servings prepared in New Orleans was much greater--approximately 50 per restaurant; the median number of actual servings was 25. The median number of total customers per test meal was 78 in Cleveland and 140 in New Orleans. Therefore, approximately 20 percent of the customers at a given meal were served sweetpotatoes when this item was on the menu (table 10).

Whenever possible menus were obtained and subsequently analyzed. There were 54 midday menus and 26 evening menus. The midday menus contained an average of 12 entrees; the evening menus, 15 entrees. Sweetpotatoes were listed with only two entrees--ham and turkey.

In Cleveland, 157 cans of instant sweetpotato flakes were used for the test; 278 cans were used in New Orleans. Each can contained 1-1/2 pounds of product; when reconstituted this represented approximately 15 servings of mashed sweetpotatoes, based upon the test recipe.

Table 10.--Median number of meals served that included instant sweetpotatoes

Test city	Total served	Meals including instant sweetpotatoes	
	<u>Meals</u>	<u>Meals</u>	<u>Percent</u>
Cleveland.....	78	16	20.5
New Orleans.....	140	25	17.9

#### Preparation of Recipes

Sweetpotato flakes were used in recipes 84 times in Cleveland. Ideally, there would have been 88 such utilizations (44 restaurants times two testings). However, 4 restaurants used the product for only one test. Of these 84 opportunities, 52 changes were made in recipe preparation. In New Orleans, changes were made in 63 out of 76 uses of recipes. This indicates the seemingly great need for chefs and cooks to make changes in recipes. This tendency appears to be greater in New Orleans than in Cleveland (table 11).

With respect to any one ingredient, most of the changes made involved manipulation of the amount of liquid used in reconstituting the instant sweetpotatoes. Many cooks increased the amount of liquid; still others used less than the quantity called for in a recipe (table 11). Other rather frequent changes were in the kind and amount of sugar and flavoring used.

Table 11.--Changes made in instant sweetpotato recipes

Recipe changes	Cleveland restaurants	New Orleans restaurants
	Changes <u>1/</u>	Changes <u>1/</u>
Change in kind and amount of sugar...	21	30
Increased liquid.....	14	9
Decreased liquid.....	8	5
Altered liquid (increase or decrease not known).....	3	18
Change in kind and amount of flavoring.....	10	38
Change in kind and amount of other ingredients (butter, eggs, etc.)....	36	35
Change in method of preparation.....	4	19
Number of times changes were made in recipes.....	52	63

1/ Adds to more than total number making changes because many cooks made more than one change.

## MEASUREMENT OF SWEETPOTATO UTILIZATION IN RESTAURANTS

### Use of Sweetpotatoes

In the week prior to the test, 21 of the 44 restaurants in Cleveland and 31 of the 44 in New Orleans had served sweetpotatoes. Sweetpotatoes usually were served only on one day during the week in Cleveland; in New Orleans they were served on several different days (table 12).

Table 12.--Frequency of serving sweetpotatoes in week prior to test

Frequency of serving	Cleveland <u>Restaurants</u>	New Orleans <u>Restaurants</u>
Sweetpotatoes served during week:		
1 day.....	11	7
2 days.....	0	8
3 days.....	3	3
4 days.....	0	2
5 days.....	0	1
6 days.....	2	1
7 days.....	4	8
Did not know.....	1	1
Did not serve sweetpotatoes in prior week.....	23	13
Total restaurants.....	44	44

Among those New Orleans restaurants that had not served sweetpotatoes in the past week, 8 out of 13 had served them at some time during the month. In contrast, relatively few (3 out of 23) of the comparable group in Cleveland had done this. In fact, 11 of the restaurants in Cleveland had not served sweetpotatoes within the past 3 months; only 3 of the restaurants in New Orleans had not served sweetpotatoes in the past 3 months (table 13).

It is apparent that the use pattern for sweetpotatoes is quite different in the two cities. A greater proportion of restaurants used the product in New Orleans and they used it more frequently.

Table 13.--Restaurants not serving sweetpotatoes during the week prior to the test, by lapse of time since serving sweetpotatoes

Last time sweetpotatoes were served	Cleveland	New Orleans
	<u>Restaurants</u>	<u>Restaurants</u>
2 weeks to one month.....	3	8
1 - 3 months.....	8	2
More than 3 months.....	7	3
Never served.....	4	0
Not ascertained.....	1	0
Total restaurants not serving in past week.....	23	13

Reasons for Not Using Sweetpotatoes

Restaurant operators in the two cities differ in the reasons given for not using sweetpotatoes. In Cleveland the major reasons were lack of customer demand and the high cost of the product. In New Orleans, the predominant reason given for not using sweetpotatoes was that entrees were being served that did not "call for" sweetpotatoes (table 14).

Meals When Sweetpotatoes Served; Number of Servings

In general, sweetpotatoes were served at both the midday and evening meals on a given day. This was especially true in New Orleans (table 15).

In the Cleveland restaurants that served sweetpotatoes in the week prior to the test, the median number of meals served per day at midday as estimated by the operators was 125. These same operators estimated that they had a median of 25 servings of sweetpotatoes at midday on the days when the product was on the menu. This represents approximately 20 percent of the customers having sweetpotatoes on the days the product was served. The comparable data for New Orleans indicate that approximately 36 percent of the midday customers were served sweetpotatoes on the days the product was available (table 16).

Table 14.--Reasons given for not serving sweetpotatoes (asked of those not serving sweetpotatoes or not serving within the past week)

Reason	Cleveland	New Orleans
	<u>Restaurants 1/</u>	<u>Restaurants 1/</u>
No call for them--customers don't like sweetpotatoes.....	10	1
Too expensive.....	6	1
Do not serve a specific entree that calls for them.....	4	6
Too time-consuming to prepare.....	3	1
Quality not consistent.....	2	1
Only serve with holiday meals.....	1	2
Serve only foreign foods.....	1	2
Serve them often enough for a balanced menu.....	1	0
Business didn't warrant serving them more often; not many dinners served.....	1	1
Total restaurants not serving in past week.....	23	13

1/ Adds to more than total restaurants because of multiple answers.

Table 15.--Specific meal or meals at which sweetpotatoes were served

Meals sweetpotatoes were served	Cleveland	New Orleans
	<u>Restaurants</u>	<u>Restaurants</u>
Lunch only - did serve dinner.....	5	4
Lunch only - did not serve dinner..:	1	3
Dinner only - did serve lunch.....	3	3
Dinner only - did not serve lunch..:	0	0
Both lunch and dinner.....	12	21
Total restaurants serving in past week.....	21	31

Table 16.--Estimated median customer count and servings of sweetpotatoes reported by restaurant operators who used sweetpotatoes during the week prior to the first interview

Meal	Cleveland	New Orleans
Midday:		
Customer count.....	125	100
Servings of sweetpotatoes.....	25	36
Restaurants serving sweet- potatoes.....	18	28
Evening:		
Customer count.....	85	90
Servings of sweetpotatoes.....	50	25
Restaurants serving sweet- potatoes.....	15	24

When sweetpotatoes were on the evening menus in Cleveland restaurants, approximately 58 percent of the customers were served them. In restaurants in New Orleans the comparable data showed about 28 percent of the customers having sweetpotatoes. The higher incidence for Cleveland might be due to the fact that when sweetpotatoes are served in that city's restaurants, they are much more likely to appear on the menu with an entree highly associated with sweetpotatoes. It has been shown above that the practice in Cleveland is to serve sweetpotatoes on only one day during the week. It is probable that on this one day an entree or "special" calling specifically for sweetpotatoes is on the menu.

In terms of numbers of customers, those restaurants serving sweetpotatoes during the week prior to the test were not appreciably different from all restaurants in the samples. The median number of customers for the midday meal estimated for all restaurants was 112.5 for both Cleveland and New Orleans; for those restaurants serving sweetpotatoes, the median estimate for customers at midday was 125 in Cleveland and 100 in New Orleans (table 16). For evening, the median estimate of customers for all restaurants in Cleveland was 80 and 75 in New Orleans. In the restaurants serving sweetpotatoes, the median estimates were 85 customers in Cleveland and 90 in New Orleans.

#### Style of Preparation

The primary style in which the product was served was as candied sweetpotatoes. Relatively few restaurants served either mashed sweetpotatoes or home-baked sweetpotato pies (table 17).

Table 17.--Number of restaurants serving specific styles of sweetpotatoes in week prior to first interview

Style sweetpotatoes were served	Cleveland	New Orleans
	<u>Restaurants <u>1/</u></u>	<u>Restaurants <u>1/</u></u>
Candied.....	19	30
Mashed.....	4	7
"Homebaked" - pie.....	3	5
Other.....	1	2
Total restaurants serving in past week.....	21	31

1/ Adds to more than total restaurants because some served in more than one way.

### Buying Practices

In Cleveland, fresh and canned sweetpotatoes had been used by nearly equal numbers of restaurant operators. On the other hand, although New Orleans is in the heart of the sweetpotato producing area, more restaurants in that city reported using canned sweetpotatoes than fresh sweetpotatoes (table 18).

Table 18.--Form of sweetpotato purchased by restaurants serving sweetpotatoes in week prior to first interview

Form of sweetpotato purchased	Cleveland	New Orleans
	<u>Restaurants</u>	<u>Restaurants</u>
Fresh.....	10	10
Canned.....	8	15
Both.....	3	6
Total restaurants serving in past week.....	21	31

In New Orleans the main reason given for using canned sweetpotatoes was that this form saves time and labor. Reasons given by restaurant operators in Cleveland were divided among "saves time and labor," "always available," "less expensive," and "uniform in size" (table 19).



Table 19.--Reasons given for using canned sweetpotatoes

Reasons	Cleveland	New Orleans
	<u>Restaurants <u>1/</u></u>	<u>Restaurants <u>1/</u></u>
Saves time; labor.....	3	11
Always available, always on hand..	2	3
Less expensive.....	1	2
Uniform in size.....	1	2
No waste, spoilage.....	0	2
Convenient.....	0	1
Not ascertained.....	6	0
Total restaurants using canned sweetpotatoes in past week.....	11	21

1/ Adds to more than total number of restaurants using canned sweetpotatoes because more than one reason was given.

In New Orleans three factors were associated with the use of fresh sweetpotatoes - "The flavor is better," "They are less expensive," and "They can be prepared in a variety of ways." The latter two reasons were not mentioned by any restaurant operators in Cleveland (table 20). There was mention of texture as a reason for using the fresh product in Cleveland.

Table 20.--Reasons given for using fresh sweetpotatoes

Reasons	Cleveland	New Orleans
	<u>Restaurants</u>	<u>Restaurants</u>
Flavor of fresh is better than canned.....	2	4
Better texture.....	2	0
Like the appearance of fresh.....	1	4
Cheaper.....	0	4
Can be prepared in a variety of ways.....	0	4
Better quality.....	0	2
Other.....	1	0
Not ascertained.....	7	2
Total restaurants using fresh sweetpotatoes in past week.....	13	16

In explaining why they selected a specific brand of canned sweetpotatoes or a particular grade of fresh sweetpotatoes, restaurant operators revealed that size of product is an important consideration. They seemed to be especially concerned with obtaining uniformity of size. This could be related to the fact that candied sweetpotatoes were most often served in restaurants.

In addition to uniformity of size of product, restaurant operators were concerned with such quality factors as texture and flavor when they purchased either canned or fresh sweetpotatoes.

The restaurant operators were asked to give the usual prices paid for a can of canned sweetpotatoes and/or a bushel of fresh sweetpotatoes. The median prices reported per case of canned sweetpotatoes were \$5.34 in Cleveland and \$5.00 in New Orleans. The median prices for the fresh product were \$4.90 per bushel in Cleveland and \$2.75 in New Orleans.

### Problems in Using Sweetpotatoes

When restaurant operators in Cleveland cited problems in using fresh sweetpotatoes, they said this form was too much trouble and was too expensive to prepare. In contrast, restaurant operators in New Orleans complained that fresh sweetpotatoes could be "stringy," "hard," and "mushy." These are all quality factors. New Orleans operators also mentioned that the quality of the fresh product varies too greatly (table 21).

Table 21.--Problems reported in using fresh sweetpotatoes

Problems reported	Cleveland	New Orleans
	<u>Restaurants <sup>1/</sup></u>	<u>Restaurants <sup>1/</sup></u>
Too much trouble or too costly to prepare.....	4	1
Too expensive.....	4	0
Quality varies, not always good....	2	3
Stringy, hard, mushy.....	1	3
Perishable, spoil easily.....	1	1
Other.....	1	1
No problems noticed.....	3	9
Total restaurants using fresh product in past week.....	13	16

<sup>1/</sup> Adds to more than total because more than one problem reported.

When restaurant operators in the two cities discussed problems of using canned sweetpotatoes, they mentioned poor texture ("mushy," "stringy") lack of uniformity of size, and broken pieces (table 22).

Table 22.--Problems reported in using canned sweetpotatoes

Problems reported	Cleveland	New Orleans
	<u>Restaurants <sup>1/</sup></u>	<u>Restaurants <sup>1/</sup></u>
Soft, mushy, broken.....	3	4
Not uniform in size.....	1	2
Stringy - dislike texture.....	0	2
No problems noticed.....	7	14
Total restaurants using canned products in past week.....	11	21

<sup>1/</sup> Adds to more than total because more than one problem reported.

### Use of Dehydrated Mashed White Potatoes

Questions on the use of dehydrated mashed white potatoes were included because of the possibility that experience with that product might influence acceptance of the new instant sweetpotato flakes.

In both Cleveland and New Orleans a majority of the restaurants used dehydrated mashed white potatoes - 32 of 44 restaurants in Cleveland, 27 of 44 in New Orleans.

Among the restaurants using dehydrated mashed white potatoes, most operators said this product was used exclusively for preparation of mashed potatoes. This was reported by 23 of the 32 users of the product in Cleveland and by 16 of the 27 users in New Orleans.

## RESULTS OF THE INSTITUTIONAL MARKET TEST

### Customer Reactions to Instant Sweetpotato Flake Recipes

Entrees eaten with sweetpotatoes.--Customers who were served the test product in Cleveland restaurants most often had ham as the entree. In contrast, several different entrees were served with the sweetpotatoes in New Orleans. These entrees were pork chops, ham, beef, and poultry (table 23).

Customer evaluation of the new product.--The customers eating the new product were first asked how they were enjoying the meal (1,392 in Cleveland and 2,104 in New Orleans). Then they were asked how they liked the new recipe for sweetpotatoes. Slightly less than 6 percent of the customers had mixed or unfavorable reactions to the meal itself; approximately 95 percent made favorable comments about the meal.

Approximately 90 percent of the customers in Cleveland said that the new recipes for sweetpotatoes were "very good;" almost 80 percent made similar statements in New Orleans. When an occasional objection was made it most often was in reference

Table 23.--Entrees served with instant sweetpotatoes in restaurants

Type of entree served	Cleveland	New Orleans
	restaurants	restaurants
	<u>Menu listings <u>1/</u></u>	<u>Menu listings <u>1/</u></u>
Ham.....	36	22
Poultry.....	23	26
Beef.....	23	25
Pork chops.....	17	22
Pork roast.....	15	5
Seafood.....	7	7
Other (veal cutlet, sausage, vegetable plate, etc.).....	18	15
Not served with entree (as a dessert, etc.).....	19	27
Total number of recipe utilizations.....	84	76

1/ Adds to more than total number of recipe listings because some recipes were used with more than one entree.

to the taste of the sweetpotatoes. Other objections had to do with the texture and appearance of the product. Still others said they did not like the form of new recipe - some variety of mashed sweetpotatoes. This seems to be a reflection of the widespread use of candied sweetpotatoes (table 24).

Table 24.--Customer reactions to the meal and to instant sweetpotato flake recipes

Reaction of customers interviewed	Customers in Cleveland		Customers in New Orleans	
	restaurants		restaurants	
	Reaction to meal	Reaction to recipes	Reaction to meal	Reaction to recipes
	<u>Percent</u>	<u>Percent</u>	<u>Percent</u>	<u>Percent</u>
Favorable.....	90.9	88.5	96.4	78.4
Mixed.....	3.5	5.9	3.1	12.1
Unfavorable.....	5.6	5.6	.5	9.5
Total.....	100.0	100.0	100.0	100.0

Reaction of the Restaurant Operators to Instant Sweetpotato Flakes

Main advantages of instant sweetpotato flakes.--Only two restaurant operators (one in each city) said they could see no advantage in the new instant sweetpotato flakes. The primary advantage seen was the ease of preparation of the product. This was equally true in the two cities. Other advantages were seen in the area of convenience--"easy to store" and "takes up less space." Several operators cited the fact that there would be no waste or spoilage with the new product (table 25).

Table 25.--Advantages given for instant sweetpotato flakes by restaurant operators

Advantages	Cleveland	New Orleans
	<u>Restaurants <sup>1/</sup></u>	<u>Restaurants <sup>1/</sup></u>
Easy to prepare, saves time and labor, good in emergency.....:	40	38
No waste, no spoilage.....:	12	7
Easy to store, takes up less space:	8	6
Can be used in a variety of ways..:	3	6
Taste natural - taste like fresh..:	3	2
Texture better.....:	2	2
Uniform quality, always the same..:	1	2
Low cost item - can control cost..:	1	2
Other.....:	2	2
No advantages cited.....:	1	1
Total restaurant operators.....:	44	44

<sup>1/</sup> Adds to more than total because of multiple answers.

Main disadvantages of instant sweetpotato flakes.--Twenty-one of the 44 restaurant operators in Cleveland and 29 of the 44 in New Orleans said they saw no main disadvantages in the new instant sweetpotato flakes. When asked about disadvantages the operators most often said that this new product could not be used in a variety of ways. Some operators wondered whether their customers would react favorably to the product. A few expressed concern that the new product would be too expensive (table 26).

Expected impact of new product on volume of sweetpotatoes served.--The restaurant operators were asked, "Do you think you would serve sweetpotatoes more often if these instant sweetpotato flakes were available?" About half of the restaurant operators said "yes" (table 27).

Table 26.--Disadvantages given for instant sweetpotato flakes by restaurant operators

Disadvantages	Cleveland	New Orleans
	<u>Restaurants <u>1/</u></u>	<u>Restaurants <u>1/</u></u>
Can't be used in a variety of ways.:	6	5
Would have to be educated in their use - resist new things.....:	5	1
Customers prefer other forms.....:	3	2
Too expensive.....:	3	1
Taste too sweet, not a fresh taste.:	3	1
Color - would lose color, too orangy:	2	1
Doesn't hold up on steam table.....:	2	2
Not attractive.....:	2	1
Not easy to prepare.....:	2	0
Other.....:	1	3
No disadvantages cited.....:	21	29
Total restaurant operators.....:	44	44

1/ Adds to more than total because of multiple answers.

Table 27.--Replies to the question, "Would you serve sweetpotatoes more often if instant sweetpotato flakes were available?"

Replies	Cleveland	New Orleans
	<u>Restaurants</u>	<u>Restaurants</u>
Would serve more often.....:	24	22
Would not serve more often.....:	13	17
Don't know, depends.....:	7	5
Total.....:	44	44

Of the 13 restaurant operators in Cleveland who said they would not serve sweetpotatoes more often if the new product were available, 6 had not served sweetpotatoes in the week prior to the test. Apparently, these particular operators were expressing views about sweetpotatoes in general rather than specific objections to the new product. There were 3 out of 17 operators who fell into this category in New Orleans (table 28).

Among the operators who said they thought the new product would lead them to serve sweetpotatoes more often, most had either not served any sweetpotatoes in the week prior to the test or had served them only once during the week. It is important to emphasize the large segment of respondents in both cities who prior to the test did

Table 28.--Future use of sweetpotatoes in restaurants

Number of days sweetpotatoes were served in week prior to first	Replies to the question, "Would you serve sweetpotatoes more often if test product were available?"					
	Cleveland			New Orleans		
	"Yes"	"No"	"Maybe"	"Yes"	"No"	"Maybe"
	<u>R e s t a u r a n t s</u>					
Not served.....	15	6	2	7	3	3
1 day.....	5	2	4	3	3	1
2 days.....	0	0	0	6	2	0
3 days.....	2	1	0	0	3	0
4 days.....	0	0	0	1	1	0
5 days.....	0	0	0	1	0	0
6 days.....	0	1	1	1	0	0
7 days.....	1	3	0	2	5	1
Not ascertained.....	1	0	0	1	0	0
Total respondents..	24	13	7	22	17	5

not serve sweetpotatoes but who, after using instant sweetpotato flakes, expressed willingness to utilize the test product if it were made available (15 of 24 respondents in Cleveland and 7 of 22 respondents in New Orleans gave an affirmative answer). These respondents particularly could open new outlets for sweetpotatoes, especially utilization of instant sweetpotato flakes.

The main reason given for expecting to serve sweetpotatoes more often, if the new product were available, was the ease with which recipes can be prepared. Other reasons, given by a few operators, were that the new product could be used to add variety to menus, that it could be stored easily, and that it should be available at a consistent price (table 29).

Within the group of restaurant operators who said they did not think they would serve sweetpotatoes more often if the new product were available, some felt that there would be a lack of customer demand. Still others said they already serve sweetpotatoes often enough. These reasons substantiate the view that these particular operators were reacting to sweetpotatoes in general rather than to the new instant sweetpotato flakes (table 30).

A large number of restaurants in each city used dehydrated white potatoes exclusively for preparing mashed potatoes. These particular restaurants were more inclined to demonstrate favorable reaction to the new instant sweetpotato flakes (table 31).

Reaction to the specific recipes.--As shown previously, all of the restaurants served mashed sweetpotatoes. The reaction to this recipe was decidedly favorable (table 32). Although few restaurants served the other recipes (orange casserole, marshmallow casserole, and sweetpotato pie), the operators' reactions to them also were favorable.

Table 29.--Reasons given by restaurant operators who said they would serve sweetpotatoes more often if instant sweetpotato flakes were available

Reasons	Cleveland	New Orleans
	<u>Restaurants <u>1/</u></u>	<u>Restaurants <u>1/</u></u>
Easy to prepare; can prepare quickly as needed.....	12	14
Add more variety to menu; can be used many ways.....	3	6
Price would be consistent; good price.....	3	1
Can be stored easily; can keep on hand.....	3	1
Liked the taste.....	1	2
Customers liked them.....	1	1
Sweetpotatoes would be available at all times.....	0	1
No waste, no spoilage.....	0	1
Other.....	0	2
Not ascertained.....	6	1
Total respondents.....	24	22

1/ Adds to more than total respondents because of multiple answers.

Table 30.--Reasons given by restaurant operators who said they would not serve sweetpotatoes more often if instant sweetpotatoes flakes were available

Reasons	Cleveland	New Orleans
	<u>Restaurants <u>1/</u></u>	<u>Restaurants <u>1/</u></u>
Serve them often enough.....	6	9
Have no calls for them - customers don't like them.....	5	2
Serve other kinds of potatoes.....	3	0
They are seasonal; cool weather dish.....	1	3
Other.....	0	3
Not ascertained.....	0	1
Total respondents.....	13	17

1/ Adds to more than total respondents because of multiple answers.



Table 31.--Relation between use of dehydrated mashed white potatoes and anticipated use of instant sweetpotato flakes

Anticipated use of instant sweetpotato flakes, if available	Use dehydrated white potatoes exclusively		Do not use dehydrated white potatoes exclusively	
	Cleveland	New Orleans	Cleveland	New Orleans
<u>R e s t a u r a n t s</u>				
Would serve instant sweet-potato flakes more often..	15	9	9	13
Would not serve instant sweetpotato flakes more often.....	4	5	9	12
Don't know; depends.....	4	2	3	3
Total respondents.....	23	16	21	28

Table 32.--Restaurant operators' reactions to instant sweetpotato flake recipes

Recipe and reaction	Cleveland restaurants	New Orleans restaurants
	<u>Utilizations</u>	<u>Utilizations</u>
<b>Mashed sweetpotatoes:</b>		
Favorable.....	47	35
Mixed.....	10	6
Unfavorable.....	6	1
Subtotal.....	63	42
<b>Orange casserole:</b>		
Favorable.....	10	11
Mixed.....	2	0
Unfavorable.....	1	2
Subtotal.....	13	13
<b>Marshmallow casserole:</b>		
Favorable.....	2	10
Mixed.....	3	0
Unfavorable.....	0	0
Subtotal.....	5	10
<b>Sweetpotato pie:</b>		
Favorable.....	2	7
Mixed.....	0	3
Unfavorable.....	1	1
Subtotal.....	3	11
Total recipe utilizations.....	84	76

The specific characteristics of the instant sweetpotato flakes recipes that were associated with favorable reaction were flavor and texture ("it was fluffy," "it had good consistency"). Easy preparation also was a factor leading to favorable reaction to a recipe (table 33).

Table 33.--Reasons given by restaurant operators who thought various instant sweetpotato flake recipes were good

Reason	Cleveland restaurants	New Orleans restaurants
	Operators <u>1/</u>	Operators <u>1/</u>
Good - no reason given.....	15	18
Flavor good.....	24	15
Texture fluffy, consistency good..	10	11
Easy to prepare.....	7	17
Customers enjoyed it.....	6	7
Good, but had some objection to taste (too sweet, etc.).....	4	0
Held up well (on steam table, etc.):	3	0
Added variety to meal.....	3	5
Appearance was good.....	3	2
Miscellaneous.....	0	3
Total restaurant operators.....	44	44

1/ Adds to more than total because of multiple answers.

When unfavorable comments were made about recipes they included such statements as, "the customers didn't like it," "I had to change the recipe and doctor it up," "it was too soft," and "it was too sweet."

Size of can.--The restaurant operators were asked, "Was the size of can about right, too large, or too small?" (The cans used in the test held 1 - 1/2 pounds of instant sweetpotato flakes.) In each city 34 out of 44 operators said that the size of can was all right. When objections were expressed in Cleveland, the general view was that the can was too large; in New Orleans the judgment was that the can was too small. This difference in reaction to the size of can preferred is most likely related to the difference in extent of use of sweetpotato flakes in the two cities.

#### MARKET POSSIBILITIES FOR INSTANT SWEETPOTATO FLAKES

Sweetpotato flakes were developed by the Southern Regional Research Laboratory because it was thought that an easy-to-use sweetpotato product comparable in flavor and texture to fresh sweetpotato could halt and perhaps reverse the long-term decline in consumption of sweetpotatoes. The results of this study support this view.

The present research results are representative only of the two cities in which the product was tested, and projections of these results should not be regarded as

conclusive but only as an indication of the market possibilities of the product. However, these results are important to the sweetpotato industry since the institutional food market represents about 25 percent of total food expenditures in the United States.

An important aspect in evaluating a new product is the climate of opinion in which it will be introduced. This is reflected in restaurant operators' use of and reactions to sweetpotatoes prior to this test. Important positive factors can be noted in the acceptance of sweetpotatoes. In southern cities such as New Orleans, there is already wide consumer acceptance of sweetpotatoes in restaurants. Cleveland also has a fair degree of sweetpotato acceptance. In other words, there already seems to be a fairly substantial established market for sweetpotatoes in restaurants in these cities. The following factors appear to be detrimental to increased utilization of sweetpotatoes in restaurants: The tendency to consider sweetpotatoes suitable only for a limited set of entrees, for example ham or turkey; serving sweetpotatoes in only the candied form; little or no experience in serving some variation of the mashed form; concern with the time and labor elements in the preparation of sweetpotatoes; concern with such matters as consistency of quality (texture, flavor); and lack of uniformity in size of product.

### Restaurants

Evidence obtained in this study indicates that there is a good potential market for sweetpotato flakes in restaurants. Most of the restaurant operators expressed a high degree of interest in the new product when the research plan was first discussed. The study reveals that when sweetpotatoes were offered on the menu, about 20 percent of all customers at a given meal ordered them and, more important, they liked them.

About half of the restaurant operators in the two cities said they thought they would serve sweetpotatoes more often if the new product were available. Those who said this were generally operators who were infrequent users or nonusers of sweetpotatoes. Thus, the product should contribute to expanding the market for sweetpotatoes.

The research reported here indicates certain specific assets and liabilities for this new product which need to be taken into consideration in developing promotional and marketing plans.

Following are the apparent assets of the flake product: (1) the ease with which recipes could be prepared from the instant flakes; (2) even when changes are made in recipes, the resulting product still met with favorable customer response; (3) the operator does not have to be as concerned with consistency of quality and uniformity of size as with other forms; (4) ease of storage and ready availability of supplies; and (5) less waste or spoilage.

The versatility of the product in various recipes could be an asset to the sweetpotato industry. The popularity of the candied recipe assures the canned sweetpotato most of its present market in restaurants. The sweetness of the candied recipes, however, may be a barrier to the inclusion of sweetpotatoes on a larger number of menu entrees. The new product might partly alleviate this.

Despite some apprehension on the part of operators concerning customer acceptance of the new product, if it appears on menus favorable customer reaction can be expected. Favorable reaction was registered when sweetpotatoes were served in

mashed form rather than in the traditional candied form. Some operators had not expected this to be so. Apparently, mashed sweetpotatoes and variations thereof have potential for expanding the market for sweetpotatoes in restaurants. It appears that the relatively widespread use of dehydrated white mashed potatoes in restaurants has facilitated the acceptance of sweetpotato flakes.

A deterrent to the use of sweetpotato flakes appears to be the universal restaurant practice of serving candied sweetpotatoes. A problem remains in getting restaurant operators to expand their use of sweetpotatoes beyond this particular recipe. Also, there seems to be doubt in some restaurant operators' minds concerning the versatility of the new product. The variety of forms in which sweetpotato flakes can be served will need emphasis to overcome the reservations of restaurant operators. A possibility is aluminum foil potato boats of the type used successfully to get a baked potato form for dehydrated white potatoes. Another major difficulty is the practice of listing sweetpotatoes on menus with only a few entrees. Efforts might be made to convince restaurant operators that sweetpotatoes are suitable for many entrees other than ham or turkey.

Another liability might be the price of sweetpotato flakes. Although the questionnaire made no specific reference to price, restaurant operators were concerned with this factor.

#### Other Institutions

Although no detailed study of other segments of the institutional market was made a few of these outlets were included in this study. Tests were conducted in 7 institutions in each city--public schools, hospitals, day nurseries, homes for the aged, and boarding schools.

Sweetpotatoes were used less frequently in these institutions than in restaurants; 11 of the 14 institutions had not served sweetpotatoes in the week prior to the test. The reasons given most often for not serving sweetpotatoes were that "customers" did not particularly care for sweetpotatoes and that this product was too time-consuming to prepare.

After using the new instant sweetpotato flakes, 7 of the 14 institutions indicated that sweetpotatoes would be served more often if the new product were available. The primary reason for this view was the ease of product preparation. A selling point for these outlets appears to be the excellent nutritive value of sweetpotatoes. Apparently, institutions are a good potential market for this product.

#### CONCLUSIONS

In conclusion, the research results indicate a highly favorable reaction to this new product by the management, kitchen help, and customers of restaurants and other types of institutional outlets. It appears likely that a product with the attributes attested to in this research can bring about changes in previous patterns of use and thus provide some of the impetus necessary to bring about a reversal in the decline in sweetpotato consumption.

APPENDIX A. Schedules

UNITED STATES DEPARTMENT OF AGRICULTURE  
 Economic Research Service  
 Marketing Economics Division  
 Market Potentials Branch  
 Food Uses Section

Budget Bureau No. 40-6222

Expiration Date June 30, 1962

(SCHEDULE I)

INSTITUTIONAL USE OF INSTANT

SWEET POTATO FLAKES

(Study #1-108)

1. Name of establishment \_\_\_\_\_

2. Address \_\_\_\_\_

Cleveland	1
New Orleans	2

3. Name of respondent \_\_\_\_\_

4. Position:

Owner	1
Manager	2
Chef; cook	3

5. Type of establishment:

Restaurant - not in hotel	1
Restaurant - in hotel	2
Cafeteria	3
Other (school, hospital, etc.)	

6. Menu:

General menu	1
Special menu	2
Specialty	

7. What was the average number of meals served here per day for lunch last week?

\_\_\_\_\_

8. What was the average number of meals served here per day for dinner last week?

\_\_\_\_\_

9. In the past week - Sunday through Saturday - on how many different days did you serve sweet potatoes?

(SKIP TO Q.13)	Number of days	
	None	

(ASK Q's. 10 - 12 ONLY IF "NONE" TO Q. 9)

10. Do you sometimes serve sweet potatoes?

	Yes	1
(SKIP TO Q.12)	No	2

11. (IF "YES") When was the last time you served sweet potatoes?

\_\_\_\_\_

12. How does it happen that you don't serve sweet potatoes? (more often?)

(NOW SKIP TO Q. 22)

(ASK Q's. 13 THROUGH 21 IF SWEET POTATOES SERVED, Q. 9)

13. In which meal or meals did you serve sweet potatoes?

Lunch	1
Dinner	2

14. (FOR EACH MEAL CIRCLED IN Q. 13) About how many servings of sweet potatoes did you use for a (lunch) (dinner) ?

Lunch \_\_\_\_\_

Dinner \_\_\_\_\_

15. In what way or ways did you serve sweet potatoes?

Candied sweet potatoes	1
A mashed sweet potato dish	2
"Home-baked" sweet potato pie	3
Other	4

16. What form of sweet potatoes have you been buying? (RECORD IN COL. 1 OF TABLE BELOW)

17. (Explain by form): \_\_\_\_\_

18. (FOR EACH FORM IN Q. 16) What brand or grade of sweet potatoes do you buy? (ENTER IN COL. 2 OF TABLE)

19. (Explain - by brand or grade): \_\_\_\_\_

20. What price do you pay per case for \_\_\_\_\_ sweet potatoes?  
(BRAND; GRADE)  
(ENTER IN COL. 3 OF TABLE)

Col. 1		Col. 2		Col. 3
Q. 16		Q. 16		Q. 20
FORM		(BRAND)	(GRADE)	PRICE PER CASE
Canned	1			
Frozen	2			
Fresh	3			



21. (IN EACH FORM USED IN Q. 16) What kinds of problems have you noticed in using \_\_\_\_\_ sweet potatoes?

(FORM)

FORM \_\_\_\_\_ Problems: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

FORM \_\_\_\_\_ Problems: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

FORM \_\_\_\_\_ Problems: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(ASK EVERYONE)

22. Did you use any dehydrated white potatoes in the past week?

Yes	1
(SKIP TO Q. 26) No	2

(ASK Q's. 23, 24 & 25 IF "YES" TO Q. 22)

23. Did you make all of your mashed white potatoes from this product?

Yes	1
No	2

24. How many servings of mashed white potatoes do you use for a typical lunch?

\_\_\_\_\_

25. How many servings of mashed white potatoes do you use for a typical dinner?

\_\_\_\_\_

SCHEDULE FOR TEST DAYS AND RECIPES

26. Week - 1

Week - 2

Week - 3

27. Day:

Sunday	1	Sunday	1	Sunday	1
Monday	2	Monday	2	Monday	2
Tuesday	3	Tuesday	3	Tuesday	3
Wednesday	4	Wednesday	4	Wednesday	4
Thursday	5	Thursday	5	Thursday	5
Friday	6	Friday	6	Friday	6
Saturday	7	Saturday	7	Saturday	7

28. Recipe

Mashed	1
Orange	2
Pie	3

Mashed	1
Orange	2
Pie	3

Mashed	1
Orange	2
Pie	3

29. Meal:

"Hours"

"Hours"

"Hours"

Lunch	1		Lunch	1		Lunch	1	
Dinner	2		Dinner	2		Dinner	2	

30. Number of servings

(sweet potatoes) anticipated:

\_\_\_\_\_

31. Size of portion

(ounces or cups):

(CIRCLE)

(CIRCLE)

(CIRCLE)

\_\_\_\_\_ ounces

\_\_\_\_\_ ounces

\_\_\_\_\_ ounces

\_\_\_\_\_ cups

\_\_\_\_\_ cups

\_\_\_\_\_ cups

How recipes will be on menu:

32. 1st Recipe:

Mashed	1
Orange	2
Pie	3

33. How on menu:

Choice from set of vegetables	1
Served with a particular entree (ham, turkey, etc.) - SPECIAL FOR THE MEAL	2
Served with a particular entree - NOT THE SPECIAL	3

33a. Entree:

34. Is this the usual way sweet potatoes are presented on the menu?

Yes	1
No	2

35. 2nd Recipe:

Mashed	1
Orange	2
Pie	3

36. How on menu:

Choice from set of vegetables	1
Served with a particular entree (ham, turkey, etc.) - SPECIAL FOR THE MEAL	2
Served with a particular entree - NOT THE SPECIAL	3

36a. Entree:

37. Is this the usual way sweet potatoes are presented on the menu?

Yes	1
No	2

38. Day supply will be delivered: \_\_\_\_\_

39. Time of day to be delivered: \_\_\_\_\_

40. Obtain sample menus

Interviewer \_\_\_\_\_

UNITED STATES DEPARTMENT OF AGRICULTURE  
Economic Research Service  
Marketing Economics Division  
Market Potentials Branch  
Food Uses Section

Budget Bureau No. \_\_\_\_\_  
Expiration Date \_\_\_\_\_

(SCHEDULE II)

INSTITUTIONAL USE OF INSTANT

SWEET POTATO FLAKES

(Study #1-108)

1. Name of establishment \_\_\_\_\_ 2. Address \_\_\_\_\_

Cleveland	1
New Orleans	2

3. Meal observed:

Lunch	1
Dinner	2

4. Recipe used:

Mashed	1
Orange	2
Pie	3

5. Changes made in recipe with reasons for each change:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



(SCHEDULE III)

INSTITUTIONAL USE OF INSTANT

SWEET POTATO FLAKES

(Study #1-108)

1. Name of establishment \_\_\_\_\_ 2. Address \_\_\_\_\_

Cleveland	1
New Orleans	2

3. Meal observed:

Lunch	1
Dinner	2

4. Recipe used:

Mashed	1
Orange	2
Pie	3

5. On menu - tally entree sweet potatoes served with:

6. How are you enjoying your meal?

(Tally)

Favorable	
Mixed	
Unfavorable	

7. We are trying a new recipe for sweet potatoes today. What do you think of them?

FAVORABLE (Tally)	MIXED (Tally)	UNFAVORABLE (Tally)

(SCHEDULE IV)

INSTITUTIONAL USE OF INSTANT

SWEET POTATO FLAKES

(Study #1-108)

1. Name of establishment \_\_\_\_\_ 2. Address \_\_\_\_\_

Cleveland	1
New Orleans	2

Actual schedule of test days:

3. Week - 1                      Week - 2                      Week - 3

4. Day:	Sunday	1	Sunday	1	Sunday	1
	Monday	2	Monday	2	Monday	2
	Tuesday	3	Tuesday	3	Tuesday	3
	Wednesday	4	Wednesday	4	Wednesday	4
	Thursday	5	Thursday	5	Thursday	5
	Friday	6	Friday	6	Friday	6
	Saturday	7	Saturday	7	Saturday	7

5. Recipe:

Mashed	1	Mashed	1	Mashed	1
Orange	2	Orange	2	Orange	2
Pie	3	Pie	3	Pie	3

6. Meal:

Lunch	1	Lunch	1	Lunch	1
Dinner	2	Dinner	2	Dinner	2

7. No. servings prepared \_\_\_\_\_  
 8. Actually served \_\_\_\_\_  
 9. Total product used \_\_\_\_\_ cans \_\_\_\_\_ cans \_\_\_\_\_ cans  
 10. Total customer count \_\_\_\_\_

11. (FOR EACH RECIPE) - How did the \_\_\_\_\_ work? Was it good, just all right, or unsatisfactory?  
 (RECIPE)

RECIPE:

Mashed	1	Good	1
Orange	2	Just all right	2
Pie	3	Unsatisfactory	3

RECIPE:

Mashed	1	Good	1
Orange	2	Just all right	2
Pie	3	Unsatisfactory	3

12. Explain:

Recipe: Mashed  Orange  Pie

Recipe: Mashed  Orange  Pie

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

13. (IF MORE THAN ONE RECIPE USED) Which recipe do you feel was the better one?

BETTER RECIPE:

Mashed	1
Orange	2
Pie	3

14. Explain:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



15. What do you see as being the main advantages of these sweet potato flakes?

_____	_____
_____	_____
_____	_____

16. What do you see as being the main disadvantages of these sweet potato flakes?

_____	_____
_____	_____
_____	_____

17. Was the size of the can about right, too large, or too small?

About right	1
Too large	2
Too small	3

18. (IF "TOO LARGE" OR "TOO SMALL") What size of can would you recommend?

19. Do you think you would serve sweet potatoes more often, if these instant sweet potato flakes were available?

Would serve more often	1
Would not serve more often	2
Don't know; depends	3

20. (IF "PRICE" MENTIONED) That is, aside from price or if the price was satisfactory. (ENTER ABOVE)

21. Explain answer to Q. 19:

Interviewer \_\_\_\_\_

APPENDIX B.--INSTANT SWEETPOTATO FLAKE RECIPES

MASHED SWEET POTATOES

Ingredients	25 portions	Directions
Sweet potato flakes	2 pounds 9 ounces (2-3/4 quarts)	1. Add sweet potato flakes to hot water in mixing bowl, mixing to insure that all flakes are moistened.
Hot water	2-1/2 quarts	
Butter or margarine	3 ounces (6 tablespoons)	2. Add fat, brown sugar, salt, and nutmeg if desired, to sweet potatoes. Mix well.
Brown sugar	2-1/2 ounces (6 tablespoons)	
Salt	1/2 teaspoon	3. Heat over hot water (about 15 min.) before serving.
Nutmeg if desired	1 teaspoon	

ORANGE SWEET POTATOES

Ingredients	25 portions	Directions
Sweet potato flakes	2 pounds 9 ounces (2-3/4 quarts)	1. Add sweet potato flakes to water in mixing bowl, mixing to insure all flakes are moistened.
Water (Hot)	2-1/2 quarts	
Salt	1/2 teaspoon	2. Add salt and blend.
Orange juice	2-1/4 cups	3. Place in greased pans (12-1/2 x 20-1/2 x 2-1/2 inches) about 1 gallon or ten pounds per pan.
Lemon juice	1/2 teaspoon	
Grated orange rind	1-1/2 teaspoons	4. Combine fruit juices, grated rind, cornstarch, sugars, and fat. Cook until thickened, stirring constantly.
Cornstarch	3 tablespoons	
Brown sugar	5 ounces (2/3 cup, packed)	5. Pour 3-1/3 cups or 1 lb. 14 ounces of sauce over each pan of sweet potatoes.
Sugar	6 ounces (3/4 cup)	
Butter or margarine	3 ounces (3/8 cup)	
Crushed flake cereal	3 ounces (3 cups)	6. Top with cereal, 3 cups or 3 ounces per pan.
		7. Bake at 400°F. (hot) 15 min.

SWEET POTATO-MARSHMALLOW CASSEROLE

Ingredients	25 portions	Directions
Sweet potato flakes	2 pounds 9 ounces (2-3/4 quarts)	1. Add sweet potato flakes to hot water in mixing bowl, mix to insure that all flakes are moistened.
Hot water	2-1/2 quarts	
Butter or margarine	4 ounces (1/2 cup)	2. To sweet potatoes, add the fat, salt, spices, and orange juice. Mix well.
Salt	2 teaspoons	
Nutmeg	1/4 teaspoon	3. Spread mixture in greased baking pans (12 1/2 x 20 1/2 x 2 1/2 in.) 3 3/4 qts. or 8 lbs., 4 oz. per pan.
Cinnamon	1/4 teaspoon	
Orange juice	1 tablespoon	
		4. Bake at 350°F. moderate for 20 minutes.
Marshmallows	25	5. Top with marshmallows and bake 10 min. longer, or until marshmallows are lightly brown.

SWEET POTATO PIE

Ingredients	5 pies (9-inch)	Directions
Sweet potato flakes	2 pounds, 4 ounces (2-3/4 quarts)	1. Add sweet potato flakes to water in mixing bowl. Let stand 2 minutes. Beat to mix.
Water	1-3/4 quarts	
Egg yolks	1 cup (12)	2. Beat egg yolks into the sweet potatoes.
Milk	1-1/4 quarts	
Sugar	1 pound, 2 ounces (2-1/4 cups)	3. Stir in the milk, sugar, butter or margarine, salt, nutmeg, and lemon juice.
Butter or margarine, melted	4 ounces (1/2 cup)	
Salt	1/2 teaspoon	
Nutmeg	2 teaspoons	
Lemon juice	2 teaspoons	
Pastry shells (9 inch) unbaked	5 single crusts	4. Fill pastry shells with the sweet potato mixture, about 2 pounds or 3-1/4 cups per pie.
		5. Bake at 375°F. (moderate) for 40 minutes or until filling is set

Top pies with meringue.









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